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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|-----------------------|-------------------------------|------------------|
| 10/762,592 | 01/22/2004 | Jean-Baptiste Quoirin | S1022.81119US00 | 3018 |
| 23628 | 7590 | 09/06/2005 | | |
| WOLF GREENFIELD & SACKS, PC FEDERAL RESERVE PLAZA 600 ATLANTIC AVENUE BOSTON, MA 02210-2211 | | | EXAMINER WARREN, MATTHEW E | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2815 | |

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/762,592

Applicant(s)

QUOIRIN ET AL.

Examiner

Matthew E. Warren

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 12-18 and 30-33 is/are rejected.
- 7) ☒ Claim(s) 6-11, 19-29 and 32-42 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/2/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the Amendment filed on May 31, 2005.

Drawings

The drawings were received on June 2, 2005. These drawings are not acceptable. The drawings show all new figures that are not disclosed in the specification and are therefore not properly supported by the specification. These drawings will not be entered.

Figures 1A and 1B should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2, 3, and 12-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 states that "contacts with the regions to be connected are taken by conductive fingers substantially crossing the entire region with which a contact is established." The limitation is indefinite because it is not understood structurally how the contacts and conductive fingers are disposed in the component. The examiner will interpret the claim to mean that "contacts are connected to conductive fingers, said conductive fingers substantially crossing the entire active region."

Claim 3 was amended to depend from claim 1 instead of claim 2, however the limitation of "the conductive fingers" now lacks antecedent basis since claim 1 does not mention conductive fingers.

Additionally in claims 12-14, the preamble contains the limitation of an "IGBT transistor." There is insufficient antecedent basis for this limitation in the claim since claim 1 does not mention an IGBT.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

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only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5 as far as understood, 15-18, and 30-33 are rejected under 35

U.S.C. 102(e) as being anticipated by Disney (US 6,781,198 B2).

In re claims 1-5, 15-18, and 30-33 Disney shows (fig. 1) a MOS-type power in which active regions (22b) extend to a surface (top surface) of a semiconductor chip substantially across an entire thickness (the active region crosses most of the thickness of the substrate and therefore extends "substantially" across it). Contacts (32) are connected to conductive fingers (24a-c), said conductive fingers substantially crossing the entire active region. The conductive fingers are metal (col. 4, lines 1-11). The junctions or limits between regions (22a-b) are arranged in planes or several cylinders that a perpendicular to the main surface of the chip.

Allowable Subject Matter

Claims 6-11, 19-29, and 32-42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Although claims 12-14 are rejected under 35 USC 112, there is no prior art rejection for these claims because they contain allowable subject matter. The claims would be allowable if the 112 issues were corrected and rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed with respect to claims 1-5 have been fully considered but they are not persuasive. The applicant primarily asserts that the prior art reference does not show all of the elements of the claims, specifically that Disney does not show that all of the active regions of the MOS-type power component extend substantially across an entire thickness of the substrate. The examiner believes that Disney shows all of the elements of the claims. It is assumed that the applicant intends the term "active regions" to be all of the elements of the semiconductor devices such as source, drain, or channel. Typically, the term "active region" is defined as the portion of the substrate in which the transistor action takes place. Usually components such as the source, drain, channel, drift region, buried layer, etc. are formed within an active region. Thus, when interpreted broadly, the examiner understands the term "active region" to mean the portion of the substrate in which the transistor functions take place. In this case, the source, drain, N-type drift regions, and N+ substrate, are formed in the active region. We know that the active region extends across the entire substrate because the transistor action is vertical, extending from the top surface to the drain electrode at the bottom surface. In that respect, Disney shows that all of the active regions extend perpendicularly to a surface of the semiconductor chip substantially across an entire thickness. Therefore, the prior art references show all of the elements of the claims and this action is made final.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew E. Warren whose telephone number is (571) 272-1737. The examiner can normally be reached on Mon-Thur and alternating Fri 9:00-5:00pm.

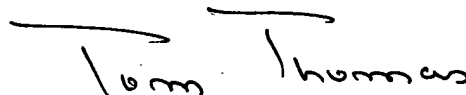
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MEW

August 29, 2005

A handwritten signature in black ink that reads "Tom Thomas". The signature is written in a cursive style with a horizontal line above the first "T" and another above the second "T".

TOM THOMAS
SUPERVISORY PATENT EXAMINER